

S & P Working Group
June 27, 2003

Scarcity Pricing Update
Persistent Dragging Update

June 27, 2003 -- For Discussion Only

Scarcity Pricing

During times of shortage prices should go up.
This behavior is expected and is desirable.

An undesirable feature of the NY wholesale energy market was that prices went down during times of shortage.

We fixed this

Deployed: 6/17/2003

Enabled: 6/23/2003

Motivation

- **Shortage of 10-Minute Reserve**
 - When short of reserve the ISO is willing to pay up to \$1000 for energy (to back down internal generators and create reserve)
- **Demand Reductions**
 - The ISO is willing to pay Special Case Resources (SCR) up to \$500 to shed load
 - The ISO is willing to pay Emergency Demand Reduction Program (EDRP) participants \$500 to shed load
- **Scarcity Pricing uses this “willingness to pay” to establish the price of energy under shortage situations**

Persistent Shortage of 10-Minute Reserve

- Set Zone J (NYC) price to \$1000 upon detecting a persistent shortage of 10-minute reserve. There will be small variations in scarcity prices elsewhere that reflect differences in losses.
- Locational Aspect
 - NYCA (LBMP Zones A-K): scarcity prices statewide
 - East (LBMP Zones F-K): scarcity prices limited to eastern NY
- Persistent if
 - Purchasing emergency energy and would be short of 10-minute reserve otherwise
 - Have been unable to resolve the shortage within 30 minutes

SCR/EDRP

- Set Zone J (NYC) price to the price of the marginal SCR/EDRP resource (up to \$500) if there would have been a 30-minute reserve shortage without the SCR/EDRP load reductions. There will be small variations in scarcity prices elsewhere that reflect differences in losses.
- Locational Aspect
 - NYCA (LBMP Zones A-K): scarcity prices statewide
 - East (LBMP Zones F-K): scarcity prices limited to eastern NY

Systems Impacted

- **IS+**
 - Accumulate recallable exports to New England
- **Reserve Comparator**
 - Account for recallable exports to New England
- **MIS**
 - Modify the Command Interface Log to allow Operations to declare a shortage of 10-minute reserve
 - Accumulate SCR/EDRP information (zones, hours, offer prices)
 - Provide SCR/EDRP information to web applications

Systems Impacted

- **LBMPC**
 - New way to calculate prices during times of shortage
- **BAS**
 - New Lost Opportunity Cost calculation for on-dispatch generating units during times of shortage
- **Web Posting**
 - Let the world know that the ISO has asked for load reduction from Special Case Resources (SCR) or with the Emergency Demand Reduction Program (EDRP)

Notification

- NYISO Web Site – Main Page
 - Information about 10-minute reserve shortage
 - Where and when SCR/EDRP have been activated
- OASIS – Main Page
 - Information about 10-minute reserve shortage
 - Where and when SCR/EDRP have been activated
- Flag in Real-time prices to indicate when special pricing rules were applied

Documentation

- TB #107, “Changes to the NYISO SCR Program”
 - SCR/EDRP eligible to set real-time LBMP
- TB #108, “Reserve Shortage Pricing”
 - Special pricing rules when there is a persistent shortage of 10-minute reserve
 - Special LOC provisions
- Services Tariff – Attachment B
 - Special pricing rules

Persistent Dragging

An accurate estimate of each generators' capacity enhances reliability of operation and results in prices that reflect the true state of the electric power system.

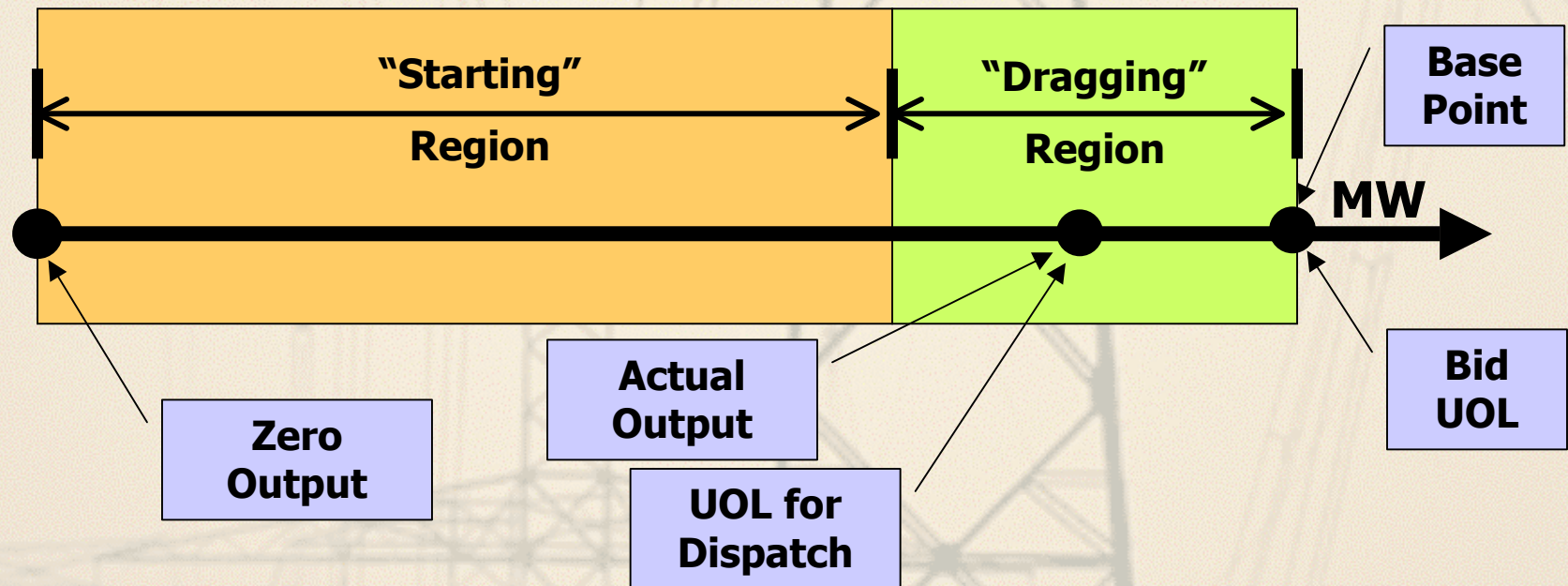
Gas turbine capability decreases as ambient temperature increases. On hot days there was no way (other than manual derates) to reflect the reduced capability of gas turbines in the dispatch.

We fixed this in SCD for gas turbines

Deployed & Enabled: 6/24/2003

Gas Turbines

- **Automatic detection of dragging in SCD**
- **Automatic compensation for dragging in SCD**
- **Automation at higher output levels only**



Otherwise

- New displays to monitor gas turbines
 - Distinguish between dragging and starting
- New displays to monitor other units
 - Monitor deviation between actual output and desired output
- Manual derate is required for SCD to “see” a reduced upper operating limit

Hour-Ahead

- A generator must be derated manually for BME to “see” a reduced upper operating limit.
 - Gas turbines within the “derate” region
 - Gas turbines within the “startup” region
 - Non-gas turbines (steam, combined-cycle, nuclear, hydro, etc.)